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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,736	07/01/2004	Yoshifumi Kachi	039.0025	6690
29453 7590 08/10/2007 JUDGE & MURAKAMI IP ASSOCIATES DOJIMIA BUILDING, 7TH FLOOR 6-8 NISHITEMMA 2-CHOME, KITA-KU OSAKA-SHI, 530-0047 JAPAN			EXAMINER PAIK, SANG YEOP	
			ART UNIT 3742	PAPER NUMBER
			MAIL DATE 08/10/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/500,736

Applicant(s)

KACHI ET AL.

Examiner

Sang Y. Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 3, 5 and 11-13 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ito et al (US 6,465,763).

Ito shows the device claimed including a substantially disk shaped ceramic substrate with first and second opposing faces and a side face perpendicular to the first and second faces, a resistive heating element provided either on a surface or inside the ceramic substrate with a diameter having the diameter of 150 mm or 200 mm with the side face of the ceramic substrate having the surface roughness of .1 to 200 microns. Having such roughness would extend the arbitrary maximum outer diameter to either 150.2 mm or 200.2 mm along the thickness of the susceptor which would yield the diameter difference of .13% or .1%, respectively, with respect the outer diameter having 150 or 200 mm along the susceptor wafer-support side. Since this is the maximum difference, it meets the recited range of .8% or less of the average diameter which is less than the maximum diameter, or in alternative, would have been less than the maximum diameter.

Ito also shows that that the ceramic substrate is made of aluminum nitride having the thermal conductivity more than 180 W/mK with the resistive heating element made of tungsten

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or molybdenum provided thereto; Ito further shows that the ceramic substrate can be made of silicon nitride which the applicant discloses as having a thermal conductivity of 20 W/mK.

With respect to the temperature uniformity being  $\pm 5$  percent or  $\pm 1$  percent, such properties or functions are presumed inherent when the structure recited in the prior art is substantially identical to that of the claims.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al (US 6,465,763) in view of Yoshida et al (US 6,080,970) or Kawada et al (US 5,66,260).

Ito shows the device claimed except having a plasma electrode.

Yoshida and Kawada show it is known in the art to provide a ceramic heater with an electrode when heating a semiconductor wafer to either provide the plasma heating and or the electrostatic attraction force. In view of Yoshida or Kawada, it would have been obvious to one of ordinary skill in the art to adapt Ito with an electrode to improve the heating and treating process of an object such as a wafer by creating the plasma or the electrostatic force for uniform heating across the wafer.

***Response to Arguments***

5. Applicant's arguments filed 11/15/06 have been fully considered but they are not persuasive.

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The applicant argues Ito cannot be construed to disclose, teach, or suggest the average diameter for the Ito heater plate. This argument is not deemed persuasive. Ito clearly discloses a disk shaped heater plate with the diameter desirably over 150 mm and particularly preferably over 200 mm or over. Ito does not suggest that the heater plate is any other shape other than the disk shape. Furthermore, Ito is also concerned about the rough surface along the thickness of the heater plate in a microscopic range, i.e. in microns, and its importance, and Ito who is concerned about such microscopic range would also be concerned about the diameter of the heater plate if the diameter was any different than the desired diameter. There is no other contrary teaching that the heater plate would have any varying diameters across the heater plate except for the varying surface roughness along the side of the heater plate. This clearly illustrates and teaches that the diameter of the plate is maintained and fixed at the desired diameter with the surface roughness being the varying parameter that affects the structure of the heater plate, i.e., the diameter of the heater plate, that would need to be further adjusted or controlled to maintain the desired uniform heating surface. Furthermore since the average cannot be more than the maximum value for any circumstances, and even applying the maximum surface roughness as the average value, the recited  $D_p$  is clearly met.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y. Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (6:30-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp